

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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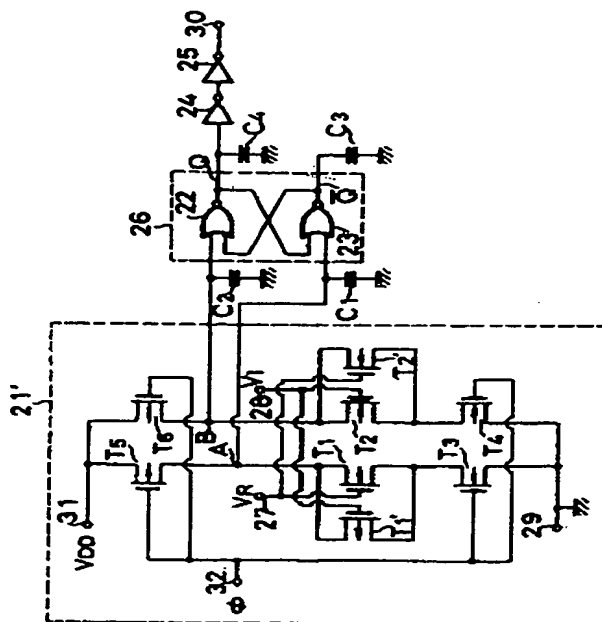
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TITLE : COMPARATOR



ABSTRACT : PURPOSE: To expand a comparable voltage range up to 0V~ power supply voltage by constituting a transistor (TR) part applying reference voltage and comparing voltage by parallel connection of p, n channel TRs.

CONSTITUTION: When voltage inputs VI, VR are higher than the threshold voltage VTHN of n-channel TRs T<sub>1</sub>, T<sub>2</sub>, the Q output of an R-S FF26 is "1" at VI > VR and "0" at VI < VR. If the inputs VI, VR is lower than the VTHN, n-channel TRs T<sub>1</sub>, T<sub>2</sub> are cut off, but p-channel TRs T<sub>1</sub>', T<sub>2</sub>' are kept at on-status during a precharging period when TRs T<sub>5</sub>, T<sub>6</sub> are off and also during a discharging period when the TRs T<sub>5</sub>, T<sub>6</sub> are on. Therefore, normal comparison is also executed in the lower case of the inputs VI, VR and "1" level signals and "0" level signals are obtained from a Q output terminal and a compared output terminal 30 at VI > VR and VI < VR respectively.

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